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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,022	04/16/2004	Yiren Hong	STL11554	9047
27365 7590 03/05/2008 SEAGATE TECHNOLOGY LLC C/O WESTMAN CHAMPLIN & KELLY, P.A. SUITE 1400 900 SECOND AVENUE SOUTH MINNEAPOLIS, MN 55402-3319			EXAMINER RENNER, CRAIG A	
			ART UNIT 2627	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/826,022	Applicant(s) HONG ET AL.	
	Examiner CRAIG A. RENNER	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-14, 16-18 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-14, 16-18 and 21-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings were received on 20 November 2007. These drawings are accepted.

Specification

2. The disclosure is objected to because of the following informality:

In lines 1-2 of claim 23, "between opposed side" should be changed to --between opposed sides-- for better clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 14, 17, 23 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. In line 2 of claim 14, "an adhesive portion filling the at least one aperture" is indefinite as it is misdescriptive of the disclosure, which teaches/shows that the adhesive portion only partially fills the at least one aperture. The circuit components fill the remainder of the at least one aperture.

- b. In line 1 of claim 23, "The composite structure" is indefinite because it lacks clear and/or positive antecedent basis.
- c. Claims 17 and 24 inherit the indefiniteness associated with base claim 14 and stand rejected as well.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 7 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Andress et al. (US 5,757,580).

Andress et al. (US 5,757,580) teach a composite structure for a data storage device (10) comprising a base (12) having a patterned surface including a motor hub (16) portion and a head actuator (20) portion; a printed circuit board (104) including a board portion and at least one component (112, for instance) extending from the board portion forming an upright surface of the printed circuit board; and a first adhesive

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portion (one portion of 102) between the board portion and the base and a second adhesive portion (another portion of 102) between the upright surface of the printed circuit board and an upright surface (any element 107, for instance) of the base [as per claim 7]; wherein the at least one component is a connector (112) and the second adhesive portion is between the upright surface of the base and the connector (as shown in FIG. 3, for instance) [as per claim 22].

7. Claims 1, 2, 4, 7, 8, 13, 14, 16, 22 and 24 are rejected under 35 U.S.C. 102(a) and/or 35 U.S.C. 102(e) as being anticipated by Codilian (US 6,697,217).

With respect to claims 1, 2 and 4, Codilian (US 6,697,217) teaches a composite structure for a data storage device comprising a base (22) having a first side (as shown in FIG. 3, for instance) and a second side (as shown in FIG. 6C, for instance), the first side having a patterned surface structure for assembly of a drive motor (31) and head actuator (includes 33 and 35, for instance) and the second side having a patterned surface including at least one aperture (as shown in FIG. 6B, for instance); a printed circuit board (28) including at least one raised circuit component (30, for instance) elevated from a board portion of the printed circuit board (as shown in FIG. 6A, for instance) and the at least one raised circuit component extending into the at least one aperture on the second side of the base (as shown in FIG. 6B, for instance); and an adhesive portion (32) filling a space (34) between the at least one raised circuit component and an edge surface of the at least one aperture of the base (as shown in FIG. 6B, for instance) [as per claim 1]; wherein the structure further comprises an

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adhesive layer (32) between the base and the board portion of the printed circuit board bonding the base to the printed circuit board (as shown in FIG. 6B, for instance, i.e., at least at location 34 shown in FIG. 6A, for instance) [as per claim 2]; and wherein the printed circuit board has an upright connector (30B, for instance) and comprising an adhesive portion between the upright connector and an edge surface of the base plate (as shown in FIG. 7B, for instance) [as per claim 4].

With respect to claims 7, 8 and 22, Codilian (US 6,697,217) teaches a composite structure for a data storage device comprising a base (22) having a patterned surface including a motor hub (31) portion and a head actuator (includes 30 and 35, for instance) portion; a printed circuit board (28) including a board portion and at least one component (30, for instance) extending from the board portion forming an upright surface of the printed circuit board; and a first adhesive portion (one portion of 32) between the board portion and the base (as shown in FIG. 3, for instance) and a second adhesive portion (another portion of 32) between the upright surface of the printed circuit board and an upright surface of the base (as shown in FIG. 3 relative to FIG. 2B, for instance) [as per claim 7]; wherein the base includes at least one aperture and the at least one component extending into the at least one aperture to define the upright surface of the base and the upright surface of the printed circuit board (as shown in FIG. 3 relative to FIG. 2B, for instance) [as per claim 8]; and wherein the at least one component is a connector (as shown in FIG. 3 relative to FIG. 2B, for instance) and the second adhesive portion is between the upright surface of the base and the connector (as shown in FIG. 3 relative to FIG. 2B, for instance) [as per claim 22].

With respect to claims 13, 14, 16 and 24, Codilian (US 6,697,217) teaches a structure comprising a base (22) including a motor hub (31) portion, an actuator (includes 30 and 35, for instance) portion and at least one aperture (as shown in FIG. 6B, for instance); and means (includes 32, for instance, in at least an equivalent structural sense) for reinforcing the at least one aperture of the base to form a stiff support structure (as shown in FIG. 6B, for instance) [as per claim 13]; wherein the means for reinforcing includes an adhesive portion (32) filling the at least one aperture of the base (as shown in FIG. 6B, for instance) [as per claim 14]; wherein the structure further comprises a printed circuit board (28) having at least one component (30, for instance) projecting into the at least one aperture of the base and the means for reinforcing comprises an adhesive portion (32) between the at least one component projecting into the at least one aperture of the base and an edge surface of the at least one aperture (as shown in FIG. 6B, for instance, i.e., at least at location 34 shown in FIG. 6A, for instance) [as per claim 16]; and wherein the structure further comprises a printed circuit board (28) and comprising a layer of adhesive (32) between the printed circuit board and the base (as shown in FIG. 6B, for instance, i.e., at least at location 34 shown in FIG. 6A, for instance) [as per claim 24].

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 5, 6, 11, 12, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Codilian (US 6,697,217).

Codilian (US 6,697,217) teaches the structure as detailed in paragraph 7, supra. Codilian (US 6,697,217), however, remains silent as to the overall thickness of the structure being "less than 3.3 mm" as per claims 5 and 11, the base thickness being "between 0.2 mm and 0.3 mm" as per claims 6 and 12, and the adhesive material being "epoxy" as per claims 17 and 18.

Official notice is taken of the fact that it is notoriously old and well known in the data storage device art to modify the parameters of data storage device components during the course of routine optimization/experimentation. Official notice is also taken of the fact that epoxy is a notoriously old and well known adhesive material in the art. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the overall thickness of the structure of Codilian (US 6,697,217) be less than 3.3 mm, the base thickness of Codilian (US 6,697,217) be between 0.2 mm and 0.3 mm, and the adhesive material of Codilian (US 6,697,217) be epoxy. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the overall thickness of the structure of Codilian (US 6,697,217) be less than 3.3 mm and the base thickness of Codilian (US 6,697,217) be between 0.2 mm and 0.3 mm since such ranges, absent any criticality (i.e., unobvious and/or unexpected result(s)), are generally achievable through routine optimization/experimentation, and since discovering the

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optimum or workable ranges, where the general conditions of a claim are disclosed in the prior art, involves only routine skill in the art, *In re Aller*, 105 USPQ 233 (CCPA 1955). Moreover, in the absence of any criticality (i.e., unobvious and/or unexpected result(s)), the parameters set forth above would have been obvious to a person having ordinary skill in the art at the time the invention was made, *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

One of ordinary skill in the art would have been motivated to have had the adhesive material of Codilian (US 6,697,217) be epoxy since such is a notoriously old and well known adhesive material in the art, and since selecting a known material on the basis of its suitability for the intended use is within the level of ordinary skill in the art, *In re Leshin*, 125 USPQ 416 (CCPA 1960).

10. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Codilian (US 6,697,217) in view of Ojeda et al. (US 6,958,884).

Codilian (US 6,697,217) teaches the structure as detailed in paragraph 7, *supra*. Codilian (US 6,697,217), however, remains silent as to the structure further comprising a "printed circuit board shield fastened to an underside surface of the printed circuit board by another adhesive portion between the printed circuit board and the shield."

Ojeda et al. (US 6,958,884) teaches a structure further comprising a printed circuit board shield (includes 202, for instance, lines 13-14 in column 3, for instance) fastened to an underside surface (i.e., dependent upon viewer perspective) of a printed circuit board (4) by an adhesive portion (204) between the printed circuit board and the

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shield in the same field of endeavor for the purpose of protecting the printed circuit board. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the structure of Codilian (US 6,697,217) further comprise a printed circuit board shield fastened to an underside surface of the printed circuit board by another adhesive portion between the printed circuit board and the shield as taught by Ojeda et al. (US 6,958,884). The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the structure of Codilian (US 6,697,217) further comprise a printed circuit board shield fastened to an underside surface of the printed circuit board by another adhesive portion between the printed circuit board and the shield as taught by Ojeda et al. (US 6,958,884) since such protects the printed circuit board.

11. Claims 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Codilian (US 6,697,217) in view of Shirotori (US 4,818,907).

Codilian (US 6,697,217) teaches the structure as detailed in paragraph 7, *supra*. Codilian (US 6,697,217), however, remains silent as to the at least one aperture extending "through the base."

Shirotori (US 4,818,907) teaches at least one aperture (1a and/or 1b, for instance) extending through a base (1) in the same field of endeavor for the purpose of enabling printed circuit board components (5 and 6, for instance) to interact with interior data storage device components (17 and 18, for instance). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have

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had the at least one aperture of Codilian (US 6,697,217) extend through the base as taught by Shirotori (US 4,818,907). The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the at least one aperture of Codilian (US 6,697,217) extend through the base as taught by Shirotori (US 4,818,907) since such enables printed circuit board components to interact with interior data storage device components.

Response to Arguments

12. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRAIG A. RENNER whose telephone number is (571)272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. L. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Craig A. Renner
Primary Examiner
Art Unit 2627

CAR